

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

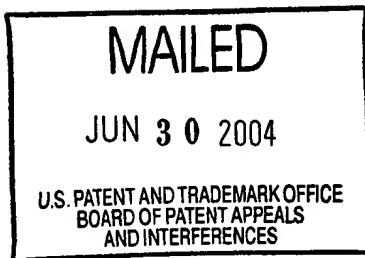
Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte EVERT S. COOPER

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Appeal No. 2003-0022  
Application 08/985,380

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ON BRIEF

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Before RUGGIERO, LEVY, and BLANKENSHIP, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal from the final rejection of claims 11-18. Claims 1-10 and 19-21 stand withdrawn from consideration as being directed to a non-elected invention.

The claimed invention relates to a control system for controlling a hard disk drive actuator in which a digital

processor generates digital positioning information as a function of a digital position error signal. The digital processor utilizes a model reference control technique to generate the digital positioning information based on an expected response of the actuator to a feed forward control signal after initialization of the hard disk drive.

Representative claim 11 is reproduced as follows:

11. A control system for controlling a hard disk drive having a rotatably supported disk, a read/write head which is movable relative to the disk and which outputs an analog servo wedge signal read from the disk, and an actuator operable to urge movement of the read/write head relative to the disk in response to an analog positioning signal, said control system comprising:

a position-error-signal channel operable to generate an analog position error signal in response to the analog servo wedge signal;

an analog-to-digital converter circuit operable to convert the analog position error signal to a digital position error signal;

a digital signal processor operable to generate digital positioning information as a function of the digital position error signal, said digital signal processor utilizing a model reference control technique a after an initialization of said hard disk drive and based on an expected response of the actuator to a feed forward control signal of said hard disk drive in generating the digital positioning information; and

a digital-to-analog converter operable to convert the digital positioning information into the analog positioning signal.

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The Examiner relies on the following prior art references:

Moon	5,111,349	May 05, 1992
Suzuki et al. (Suzuki)	5,844,744	Dec. 01, 1998
		(filed Oct. 18, 1993)

Claims 11-13 and 16-18 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Suzuki in view of Moon. With respect to the 35 U.S.C. § 103(a) rejection of claims 14 and 15, the Examiner adds the taking of Official Notice to the combination of Suzuki and Moon.

Rather than reiterate the arguments of Appellant and the Examiner, reference is made to the final Office action (Paper No. 15), the Brief (Paper No. 20), and the Answer (Paper No. 21) for the respective details.

#### OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the Examiner, the arguments in support of the rejections, and the evidence of obviousness relied upon by the Examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision,

Appellant's arguments set forth in the Brief along with the Examiner's rationale in support of the rejection and arguments in rebuttal set forth in the Examiner's Answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 11-18. Accordingly, we affirm.

At the outset, we note that Appellant's arguments in the Brief are directed solely to features which are set forth in independent claim 11. Accordingly, we will select independent claim 11 as the representative claim for all the claims on appeal, and claims 12-18 will stand or fall with claim 11.

Note In re King, 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983). Only those arguments actually made by Appellant have been considered in this decision. Arguments which Appellant could have made but chose not to make in the Brief have not been considered [see 37 CFR § 1.192(a)].

As a general proposition in an appeal involving a rejection under 35 U.S.C. § 103, an Examiner is under a burden to make out a prima facie case of obviousness. If that burden is met, the burden of going forward then shifts to Appellant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

With respect to the Examiner's 35 U.S.C. § 103(a) rejection of representative independent claim 11, Appellant's arguments in response assert a failure to establish a prima facie case of obviousness since all of the claimed limitations are not taught or suggested by the applied prior art references. In particular, Appellant directs attention to the language of claim 11 which requires the generation of digital positioning information using a feed forward control signal after an initialization of the hard

disk drive. In Appellant's view, the Moon reference, in contrast to the requirements of appealed claim 11 discloses that "the necessary value of  $C_{ffwd}$  may be determined by manual characterization of the disk drive or by automated self-characterization during disk drive initialization." (Brief, page 6).

After careful review of the applied prior art references in light of the arguments of record, we are in general agreement with the Examiner's position as stated in the final Office action and the Answer. In particular, our interpretation of the disclosure of the Moon reference coincides with that of the Examiner. As pointed out by the Examiner (Answer, page 3), Appellant's arguments are correct to the extent that Moon does indeed disclose that a value of  $C_{ffwd}$  is automatically determined during disk drive initialization. We also agree with the Examiner, however, that the ensuing discussion in columns 15 and 16 of Moon discloses that, after initialization, Moon's system enters a real time control mode in which the system responds to desired new track information by generating anticipatory, i.e., feed forward (Moon, column 14, lines 40-46), control signals to generate digital positioning signals.

We further point out that, to whatever extent Appellant is relying on the determination of the values of a feed forward signal after disk drive initialization as a distinguishing feature over Moon, such feature is not recited in the language of the appealed claims. To the contrary, the language of representative claim 11 requires only the utilization of a feed forward signal after initialization, a feature clearly disclosed in Moon as discussed supra.

In view of the above discussion, since it is our opinion that the Examiner's prima facie case of obviousness has not been overcome by any convincing arguments from Appellant, the Examiner's 35 U.S.C. § 103(a) rejection of representative independent claim 11, as well as claims 12-18 which fall with claim 11, is sustained.

In summary, we have sustained the Examiner's 35 U.S.C. § 103(a) rejection of all of the claims on appeal. Therefore, the decision of the Examiner rejecting claims 11-18 is affirmed.

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No time period for taking any subsequent action in  
connection with this appeal may be extended under 37 CFR  
§ 1.136(a).

AFFIRMED



JOSEPH F. RUGGIERO )  
Administrative Patent Judge )



STUART S. LEVY )  
Administrative Patent Judge )



HOWARD B. BLANKENSHIP )  
Administrative Patent Judge )

BOARD OF PATENT  
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